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09/874,167	06/04/2001	Markus P.J. Fromherz	D/A1215	7647

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EXAMINER

HIRL, JOSEPH P

ART UNIT	PAPER NUMBER
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2121

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Applicati n N .

09/874,167

Applicant(s)

FROMHERZ ET AL.

Examiner

Joseph P. Hirl

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. Claims 1-42 are pending in this application.
2. The claims and only the claims form the metes and bounds of the invention.  
“Office personnel are to give the claims their broadest reasonable interpretation in light of the supporting disclosure. *In re Morris*, 127 F.3d 1048, 1054-55, 44USPQ2d 1023, 1027-28 (Fed. Cir. 1997). Limitations appearing in the specification but not recited in the claim are not read into the claim. *In re Prater*, 415 F.2d, 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969)” (MPEP p 2100-8, c 2, I 45-48; p 2100-9, c 1, I 1-4). The Examiner has full latitude to interpret each claim in the broadest reasonable sense. Examiner will reference prior art using terminology familiar to one of ordinary skill in the art. Such an approach is broad in concept and can be either explicit or implicit in meaning.
3. Examiner’s Opinion: While a neural network has been used as the prior basis for a 35 USC 102 rejection, other models that incorporate training could also be used. All of these models are typically implemented on a standard computer wherein software implementation of a model is binary.

### ***Specification***

4. The specification is objected to because of the following:

Page 1, lines 5-6, delete "Attorney Docket ... XXXX, filed " and insert -U. S.

Application Serial No. 09/874,552, filed June 4, 2001--.

These objections must be corrected.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 6 and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not address transforming the problem solution a priori to the applications module/output device.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

8. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims rejected under 35 U.S.C. 102(e) as being anticipated by Black (USP 6,269,351, referred to as **Black**).

**Claims 1., 33., 34.**

Black anticipates receiving a problem statement from the applications module (**Black**, c 1, l 22-23; Fig. 3; Examiner's Note (EN): para 2 above applies; applications module is a neural network); configuring the solving module with configuration parameters (**Black**, c 1, l 27-30; EN: para 2 above applies; configuration parameters are weights); determining an expected solver behavior associated with said configuration parameters for said problem statement (**Black**, c 1, l 27-30; EN: para 2 above applies; output related to input); determining actual solver behavior (**Black**, c 1, l 27-30; EN: para 2 above applies; output related to input); reviewing, said actual solver behavior to determine if a problem solution has been found (**Black**, c 3, l 18-22); determining whether to perform a solver iteration step or to request the complexity module to performing an adaptation step if a problem solution has not been found (**Black**, c 3, l 42-50); performing a said solver iteration step when said solver iteration step is selected, comprising the steps of determining new actual solver behavior and

determining whether to repeat said solver iteration step (**Black**, c 3, l 42-50); repeating said solver iteration step until said adaptation step is selected (**Black**, c 3, l 42-50); comparing said actual solver behavior with said expected solver behavior when said adaptation step is selected (**Black**, c 3, l 18-22); requesting the complexity module to perform said adaptation step (**Black**, c 3, l 18-22); performing said adaptation step, compromising the steps of modifying said configuration parameters within the complexity module, configuring the solving module with said modified configuration parameters, determining expected solver behavior associated with said modified configuration parameters for said problem statement, selecting an algorithm to calculate a revised problem solution, determining a revised actual solver behavior associated with said modified configuration parameters for said problem statement, reviewing said revised actual solver behavior to determine if a problem solution has been found, determining whether to performing said solver iteration step or to request the complexity module to perform another adaptation step if a problem solution has not been found, and repeating said iteration step until said adaptation step is selected (**Black**, c 3, l 13-50); repeating said adaptation step until a problem solution is found (**Black**, c 3, l 13-40); and providing the solution to the applications module (**Black**, Fig. 3; EN: output layer).

**Claim 2.**

Black anticipates the step of selecting an algorithm to calculate an initial problem solution (**Black**, c 2, l 52-55).

**Claim 3.**

Black anticipates the step of refining said configuration parameters (**Black**, c 3, l 42-43).

**Claims 4., 10., 22., 35.**

Black anticipates the problem solver comprises an adaptive constraint problem solver (**Black**, c 3, l 42-43; EN: adapting to the new pattern).

**Claims 5., 12.**

Black anticipates the step of transforming said problem statement after receiving said problem statement from the applications module (**Black**, c 1, l 26-34; EN: transformation is achieved from input to output).

**Claims 6., 13., 25.**

Black anticipates the step of transforming said problem solution before providing said problem solution to the applications module (**Black**, c 1, l 26-34; EN: transformation is achieved from input to output).

**Claims 7., 14., 26., 39.**

Black anticipates configuration parameters include problem configuration parameters and solver configuration parameters (**Black**, Fig. 3, c 1, l 26-34; EN: in a neural network with multiple input layers, the weights of one layer would be problem configured while the weights of another layer would be solver configured).

**Claims 8., 15., 27.**

Black anticipates the step of transforming said problem configuration parameters before providing said problem configuration parameters to the solving module (**Black**, Fig. 3, c 1, l 26-34; EN: in a neural network with multiple input layers, the weights of one

layer would be problem configured while the weights of another layer would be solver configured).

**Claim 9.**

Black anticipates an input device for providing the problem statement (**Black**, c 1, l 17-25; c 23, l 29-33; EN: neural networks are typically implemented on standard computers wherein an input device is generic); a computer coupled to the output of said input device (**Black**, c 1, l 17-25; c 23, l 29-33; EN: a computer is a multi-functional device with various components coupled to inputs); a memory portion coupled to said computer comprising (**Black**, c 1, l 17-25; c 23, l 29-33; EN: a computer is a multi-functional device with various components); software for receiving the problem statement from said input device (**Black**, c 1, l 17-25; c 23, l 29-33; EN: a computer is a multi-functional device with various components); software for identifying system configuration parameters and system secondary goals (**Black**, c 1, l 27-34; EN: weights are configuration parameters and system secondary goals are represented in the software implementation of the neural network); software for configuring a problem solver (**Black**, c 1, l 27-34; EN: typical software implementation); software for determining expected solver behavior (**Black**, c 1, l 27-34; EN: typical software implementation); software for determining actual solver behavior and determining whether a solution has been found (**Black**, c 1, l 27-34; Equation(4); EN: typical software implementation); software for determining whether to perform a solver iteration step or to perform an adaptation step (**Black**, c 1, l 27-34; Equation(4); EN: typical



software implementation); and software for performing an adaptation step, comprising modifying said configuration parameters and reconfiguring said problem solver (**Black**, c 3, l 13-40; EN: typical software implementation); and output means for providing a solution statement (**Black**, Fig. 3; EN: output layer).

**Claim 11.**

Black anticipates said memory portion further comprises software including a learning module for refining said expected solver behavior (**Black**, c 1, l 26-34; EN: memory is generic with computers holding applicable software/data).

**Claim 16.**

Black anticipates software for determining expected solver behavior comprises a data structure containing configuration parameters and expected structure, said behaviors for a plurality of problem types (**Black**, c 1, l 26-34; c 23, l 29-33; EN: neural network structure will be inherent in the software implementation containing weights).

**Claims 17., 29.**

Black anticipates said control computer comprises an embedded computer (**Black**, c 23, l 16-33; EN: the “embedded computer” as described in the specification at page 13, lines 1-3 and further illustrated in Fig. 1 of the disclosure is a generic computer and hence, to one of ordinary skill in the art, the related implementation of ANN described by Black applies).

**Claims 18., 30.**

Black anticipates embedded computer system controls at least one operation within a copier or printer (**Black**, c 23, l 16-33; EN: see claim 17 comments; operation of a printer is a process).

**Claims 19., 31.**

Black anticipates embedded computer system controls at least one operation within a process control system (**Black**, c 23, l 16-33; EN: see claim 17 comments).

**Claims 20., 32**

Black anticipates embedded computer system controls at least one operation within a diagnostics unit (**Black**, c 23, l 16-33; EN: see claim 17 comments).

**Claim 21.**

Black anticipates an input device for providing the primary goal for the task to be performed (**Black**, c 1, l 16-33); a computer coupled to the output of said input device (**Black**, c 1, l 17-25; c 23, l 29-33; EN: a computer is a multi-functional device with various components coupled to inputs); a memory portion coupled to said computer comprising (**Black**, c 1, l 17-25; c 23, l 29-33; EN: a computer is a multi-functional device with various components): a controllable solving module for calculating actual solver behavior (**Black**, c 1, l 27-34; EN: typical software implementation; solving module/software controls the output); a complexity module coupled to said controllable solving module, for configuring a problem statement (**Black**, c 1, l 26-35; EN: software groupings are typically coupled; input-output groupings are problem statements) and a comparison module for comparing said actual solver behavior with expected solver

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behavior (**Black**, c 2, l 49-58; EN: to set the weights); and output means for providing a solution statement (**Black**, Fig. 3; EN: output layer).

**Claim 23.**

Black anticipates a learning module for refining said expected solver behavior (**Black**, c 1, l 27-34).

**Claim 24.**

Black anticipates a problem transformer module for transforming said problem solution before providing said problem solution to said output means (**Black**, c 1, l 27-34; EN: software that implements the neural network process will appropriately transforms the problem solution).

**Claim 28.**

Black anticipates complexity module a data structure, said data structure containing configuration parameters and expected behaviors for a plurality of problem types (**Black**, c 1, l 27-34).

**Claim 36.**

Black anticipates the step of referring the control parameters (**Black**, c 1, l 27-34).

**Claim 37.**

Black anticipates the step of transforming said problem statement (**Black**, c 1, l 27-34; EN: implemented software is by nature a transforming process).

**Claim 38.**

Black anticipates the step of transforming said problem solution (**Black**, c 1, l 27-34; EN: implemented software is by nature a transforming process).

**Claim 40.**

Black anticipates the step of transforming said problem configuration parameters (**Black**, c 1, l 27-34; ; EN: implemented software is by nature a transforming process).

**Claim 41.**

Black anticipates the step of selecting an algorithm for calculating a problem solution (**Black**, c 1, l 27-34).

**Claim 42.**

Black anticipates a first plurality of binary values for receiving a problem statement transmission and storing the problem statement in a first data format (**Black**, c 1, l 17-25; Fig. 3; c 23, l 16-33; EN: para 2 above applies; to one of ordinary skill in the art, neural networks are implemented on computers that have binary systems); a second plurality of binary values for transforming the first data format to a second data format (**Black**, c 1, l 17-25; Fig. 3; EN: software implementation is synonymous with transformation); a third plurality of binary values for determining expected solver behavior associated with said second data format (**Black**, c 1, l 17-25; Fig. 3); a fourth plurality of binary values for determining actual solver behavior associated with said second data format (**Black**, c 1, l 17-25; Fig. 3); a fifth plurality of binary values for determining if a problem solution has been found (**Black**, c 3, l 13-22) ; a sixth plurality of binary values for determining whether to perform a solver iteration step or perform an

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adaptation step if a problem solution has not been found (**Black**, c 1, l 17-25; Fig. 3); a seventh plurality of binary values for comparing said expected solver behavior and said actual solver behavior (**Black**, c 3, Equation (4)) ; an eighth plurality of binary values for performing a solver iteration step (**Black**, c 1, l 17-25; Fig. 3); a ninth plurality of binary values for performing a solver adaptation step (**Black**, c 1, l 17-25; Fig. 3) ; and a tenth plurality of binary values for transmitting a solution statement in a third data format (**Black**, c 1, l 17-25; Fig. 3; c 23, l 16-34).

### ***Conclusion***

10. The prior art of record and not relied upon is considered pertinent to applicant's disclosure.

Rodvold; US Pub 2002/0059154

Wang; USP 5,720,002

Klimasauskas et al, USP 5,877,954

Ornstein, USP 5,590,218

Huang et al, USP 5,493,631

11. Claims 1-42 are rejected.

***Correspondence Information***

Any inquiry concerning this information or related to the subject disclosure should be directed to the Examiner, Joseph P. Hirl, whose telephone number is (703) 305-1668. The Examiner can be reached on Monday – Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anil Khatri can be reached at (703) 305-0282.

Any response to this office action should be mailed to:

Commissioner of Patents and Trademarks,

Washington, D. C. 20231;

or faxed to:

(703) 746-7239 (for formal communications intended for entry);

or faxed to:

(703) 746-7290 (for informal or draft communications with notation of "Proposed" or "Draft" for the desk of the Examiner).

Hand-delivered responses should be brought to:

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Joseph P. Hirl



December 1, 2003



**ANIL KHATRI**  
**SUPERVISORY PATENT EXAMINER**